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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------------|------------------|
| 10/690,353 | 10/21/2003 | Jonathan A. Tertel | 107306 | 4257 |
| 23490 | 7590 | 09/21/2006 | EXAMINER | |
| HONEY WELL INTELLECTUAL PROPERTY INC PATENT SERVICES 101 COLUMBIA DRIVE P O BOX 2245 MAIL STOP AB/2B MORRISTOWN, NJ 07962 | | | DOUGLAS, JOHN CHRISTOPHER | |
| | | ART UNIT | | PAPER NUMBER |
| | | | | 1764 |
| DATE MAILED: 09/21/2006 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/690,353 | TERTEL, JONATHAN A. | |
| | Examiner | Art Unit | |
| | John C. Douglas | 1764 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 June 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Terminal Disclaimer

1. Examiner acknowledges the terminal disclaimer filed on 6/30/2006, which was approved on 7/10/2006.

Response to Amendment

2. Examiner acknowledges the response filed on 6/30/2006 containing the remarks and amendments to claims 11 and 17.
3. The amendments necessitate a new ground of rejection, which follows:

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1764

6. Claims 11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verachtert (US 4481106) in view of Morris (US 4019869). The Verachtert reference discloses a process for converting mercaptans contained in a hydrocarbon feed stream such as naphtha. These feeds may have an initial boiling point within the claimed range. The process comprises mixing the feed with an alkaline stream and oxygen and passing the mixture to the reaction section of a vessel. The feed can also be mixed with a dissolved catalyst, which is equivalent to the claimed catalyst promoter. In the reaction section, the mixture contacts a supported oxidation catalyst. All of the mixture is then passed through a permeable screen (i.e., shield) and into a separation section of the vessel. A hydrocarbon-aqueous interface is generated in the separation section and the hydrocarbon and aqueous phases are separately withdrawn from the vessel. See column 2, line 39 through column 3, line 37; column 4, lines 32-68; column 5, lines 1-8; and column 6, lines 4-44.

Verachtert does not disclose where the shield extends across the entire lateral cross-section of the reactor vessel.

However, Morris discloses a screen that the entire inner cross-sectional area of the reactor vessel (see Morris, column 3, line 60 – column 4, line 1).

Morris discloses that the screen supports the particulate matter (see Morris, column 2, lines 10-12 and column 3, line 60 – column 4, line 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Verachtert to include a screen that the

entire inner cross-sectional area of the reactor vessel in order to provide a support for the particulate matter inside the reactor.

7. Claims 1-3, 9, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927).

The Morris reference discloses an apparatus that comprises a vessel having an outer wall, a first end, and a second end. The vessel contains one inlet for a liquid such as a mixture of hydrocarbons, aqueous alkaline solution, and oxygen. It also contains a hydrocarbon outlet positioned between the first and second ends with a baffle between the inlet and hydrocarbon outlet. This outlet would necessarily include a collector as claimed. This hydrocarbon outlet is deemed to be in communication with an outlet conduit since the hydrocarbon must be transported to other equipment. The apparatus also contains an outlet for an aqueous stream that is positioned closer to the second end than the hydrocarbon outlet. The apparatus also contains a reaction section and a permeable screen (i.e., shield) that supports the catalyst in this reaction section. See column 2, lines 5-40 and 54-68; column 3, lines 1-23; and column 5, lines 23-44.

The Morris reference does not disclose that the outlet conduit is in communication with a residual alkaline removal unit such as a water wash unit.

The Dresser reference discloses that a hydrocarbon stream from an alkaline treating zone is passed through a conduit to a water wash vessel. See the figure and column 4, lines 9-59.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus of Morris by including an outlet

conduit in communication with a residual alkaline removal unit such as a water wash column as suggested by Dresser because a stable hydrocarbon product will be recovered.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927) as applied to claim 2 above, and further in view of Verachtert (US 4,481,106).

The previously discussed references do not disclose an apparatus wherein all of the fluid passes through the permeable shield.

The Verachtert reference discloses a hydrocarbon treating apparatus in which all of the fluid passes through a permeable screen defining a reaction zone and into a separation zone. The reaction zone and separation are contained within the same vessel. See column 2, line 54 through column 3, line 13.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references and modify the apparatus so that all of the fluid passes through the screen as suggested by Verachtert because a fluid that passes through the screen can be effectively separated into an aqueous phase and a hydrocarbon phase.

9. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927) as applied to claim 1 above, and further in view of "Hydrocarbon Processing".

The previously discussed references do not disclose a drain pot in communication with aqueous outlet.

The "Hydrocarbon Processing" reference discloses the use of settling tanks (i.e., drain pots) in a sweetening process. Recovered alkaline solution is then recycled. See the figure.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the previously discussed references by including a settling tank and recycle line as suggested by the "Hydrocarbon Processing" reference because additional alkaline solution would be expected to be separated in the tank. Its reuse reduces costs associated with supplying new alkaline solution.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927) as applied to claim 1 above, and further in view of Kraemer et al. (US 5,674,378).

The previously discussed references do not disclose a sand filter.

The Kraemer reference discloses that a hydrocarbon recovered from a caustic treating process can be passed through a sand filter. See column 6, lines 25-47.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by including a sand filter in the apparatus as suggested by Kraemer because the hydrocarbon recovered from the apparatus will have a higher purity.

11. Claims 12, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verachtert (US 4,481,106) in view of Morris as applied to claim 11 above, and further in view of Dresser (US 3,216,927).

Verachtert in view of Morris discloses a process for converting mercaptans contained in a hydrocarbon feed stream such as naphtha. These feeds may have an initial boiling point within the claimed range. The process comprises mixing the feed with an alkaline stream and oxygen and passing the mixture to the reaction section of a vessel. The feed can also be mixed with a dissolved catalyst, which is equivalent to the claimed catalyst promoter. In the reaction section, the mixture contacts a supported oxidation catalyst. All of the mixture is then passed through a permeable screen (i.e., shield) that covers the entire cross-section of the vessel and into a separation section of the vessel. A hydrocarbon-aqueous interface is generated in the separation section and the hydrocarbon and aqueous phases are separately withdrawn from the vessel. See Verachtert, column 2, line 39 through column 3, line 37; column 4, lines 32-68; column 5, lines 1-8; and column 6, lines 4-44. See Morris column 3, line 60 – column 4, line 1.

Verachtert in view of Morris do not disclose the passing of the hydrocarbon product to a residual alkaline removal unit the claimed manner.

The Dresser reference discloses that a hydrocarbon stream from an alkaline treating zone is passed through a conduit to a water wash vessel. The water is added to the conduit upstream of the water wash vessel. See the figure and column 4, lines 9-59.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Verachtert in view of Morris by including a hydrocarbon conduit for delivering at least a portion of the hydrocarbons from the vessel to a water wash vessel and a water conduit for delivering water to the hydrocarbon conduit upstream of the water wash vessel as suggested by Dresser

because a stable hydrocarbon product will be recovered. By including the water-washing step of Dresser in the process of Verachtert, the hydrocarbon would be washed without first undergoing settling.

12. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verachtert (US 4,481,106) in view of Verachtert (US 4,199,440) and Morris.

The Verachtert '106 reference discloses a process for converting mercaptans contained in a hydrocarbon feed stream such as naphtha. These feeds may have an initial boiling point within the claimed range. The process comprises mixing the feed with an alkaline stream and oxygen and passing the mixture to the reaction section of a vessel. The alkaline stream may be continuously mixed with the hydrocarbon. The feed can also be mixed with a dissolved catalyst, which is equivalent to the claimed catalyst promoter. In the reaction section, the mixture contacts a supported oxidation catalyst. All of the mixture is then passed through a permeable screen (i.e., shield) and into a separation section of the vessel. A hydrocarbon-aqueous interface is generated in the separation section and the hydrocarbon and aqueous phases are separately withdrawn from the vessel. See column 2, line 39 through column 3, line 37; column 4, lines 11-13 and 32-68; column 5, lines 1-8; and column 6, lines 4-44.

Verachtert '106 does not disclose where the shield extends across the entire lateral cross-section of the reactor vessel.

However, Morris discloses a screen that the entire inner cross-sectional area of the reactor vessel (see Morris, column 3, line 60 – column 4, line 1).

Morris discloses that the screen supports the particulate matter (see Morris, column 2, lines 10-12 and column 3, line 60 – column 4, line 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Verachtert '106 to include a screen that the entire inner cross-sectional area of the reactor vessel in order to provide a support for the particulate matter inside the reactor.

The Verachtert '106 reference does not the treatment to remove naphthenic acids from the hydrocarbon prior to the treatment to remove mercaptans.

The Verachtert '440 reference discloses a pretreatment of a feed to a mercaptan oxidation process. The pretreatment comprises contacting the hydrocarbon with an alkaline solution and then removing the acid salts from the hydrocarbon. See column 3, lines 43-60.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Verachtert '106 by including the pretreatment steps of Verachtert '440 because naphthenic acids tend to interfere with the separation of oil and water phases. Therefore, the removal of the acids would improve the separation efficiency of the process of Verachtert '106.

Response to Arguments

13. Applicant's arguments filed 6/30/2006 have been fully considered but they are not persuasive:

14. Applicant's arguments with respect to claims 11 and 17 have been considered but are moot in view of the new ground(s) of rejection.

15. In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant argues that Dressler does not include a solid catalyst as recited in claim 1. However, Verachtert discloses a fixed bed of contact material (see Verachtert, column 2, lines 60-65).

16. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that there is no further separation after the settler) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Calderola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCD

9/08/2006



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